Weapon Systems
United States Army 1997

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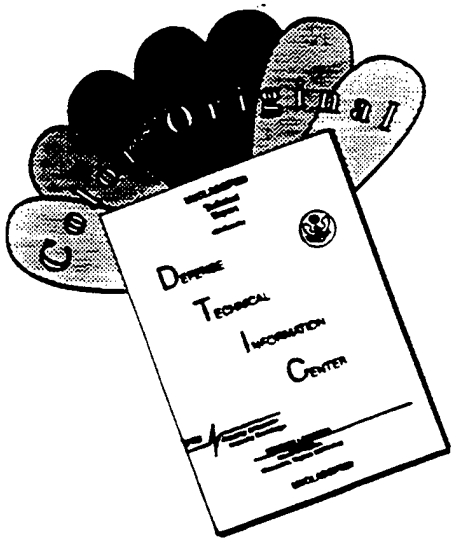

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To the Reader:

Joint Vision 2010, the Chairman's of the Joint Chiefs of Staff vision of future joint warfighting concepts, will guide the services toward a more effective future joint force. America's Army is ready to move forward as the land component member of that joint warfighting force. The Army brings the ability to conduct prompt operations on land throughout the spectrum of crisis. The Army is modernizing its forces according to the concepts of Army Vision 2010 and the guidelines of the Army modernization objectives. Each modernization objective and each Army vision concept has a counterpart in the future operational concepts of *Joint Vision 2010*, ensuring that the Army remains synchronized with the Chairman's vision.

This handbook outlines the major programs that the Army is pursuing to realize that vision. These systems will provide the tools for America's trained and ready soldiers to be the most powerful force in the world. It is our hope that you will find this book a valuable and informative reference work.

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Ronald V. Hite
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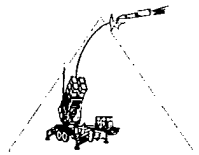
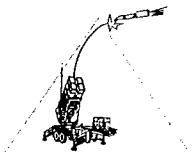
Gilbert F. Decker
Assistant Secretary of the Army
(Research, Development and Acquisition)

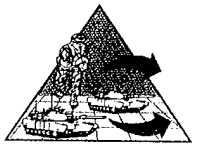
INTRODUCTION

WEAPON SYSTEMS





Science and Technology



Science and Technology

APPENDICES

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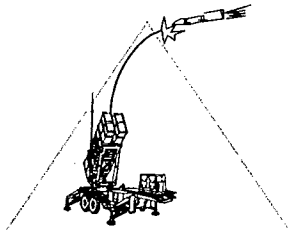
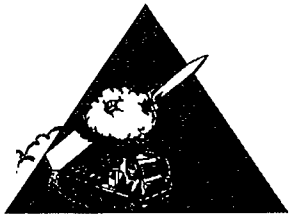
This book is divided into five **Modernization Objective** sections. The systems are listed only in the Modernization Objective section to which the system adds the most capability.

Project & Sustain

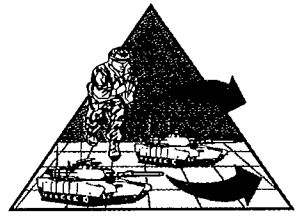


Protect the Force

Win the Information War

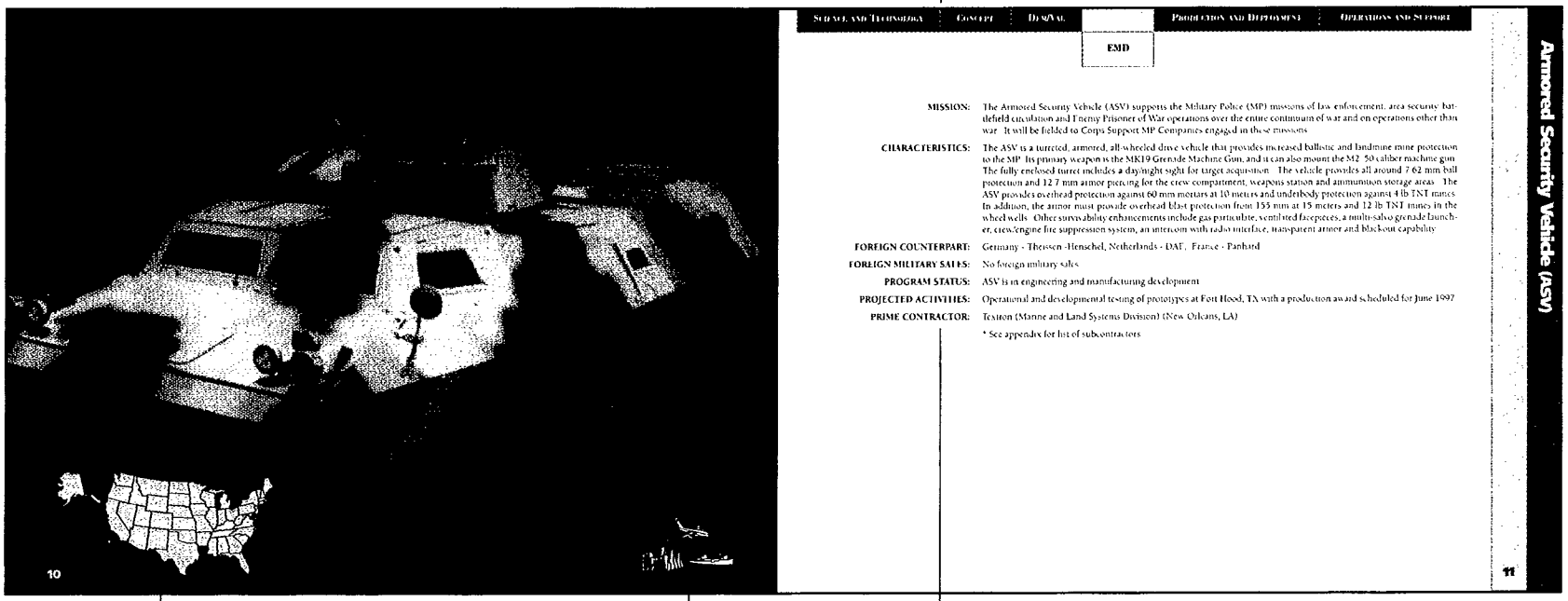


Conduct Precision Strike



Dominate the Maneuver Battle

The Life Cycle Management Model shows the development stage that the system is in. The terms are explained on the facing page.



The **U.S. Outline** highlights the states in which system contractors with ≥ 5% of total program value for FY97 are located.

The **Modernization Objective icons** are displayed for all Modernization Objectives to which the system adds capabilities.

The **Prime Contractor(s)** for the system is displayed. The major sub-contractors can be found listed in the "Contractors by System" and "Contractors by State" Appendices.

SCIENCE AND TECHNOLOGY (S&T): Efforts focused on the identification and development of promising technologies (not directly tied to specific acquisition programs) are collectively called science and technology programs. S&T encompasses programs in basic research, exploratory development, and advanced development.

CONCEPT EXPLORATION AND DEFINITION: The focus of this phase is on defining and evaluating the feasibility of alternative concepts and providing the basis for assessing the relative merits of the concepts. The objectives of this phase are to:

- Explore various material alternatives to satisfying the documented mission need,
- Define the most promising system concept(s),
- Develop supporting analysis and information to include identifying high risk areas and risk management approaches to support the Milestone I decision, and
- Develop a proposed acquisition strategy and initial program objectives for cost, schedule, and performance for the most promising system concept(s).

DEMONSTRATION AND VALIDATION (DEM/VAL): When warranted, multiple design approaches and parallel technologies are pursued within the system concept(s) during this phase. The objectives of this phase are to:

- Better define the critical design characteristics and expected capabilities of the system concept(s),
- Demonstrate that the technologies critical to the most promising concept(s) can be incorporated into system design(s) with confidence,
- Prove that the processes critical to the most promising system concept(s) are understood and attainable,
- Develop the analysis/information needed to support a Milestone II decision, and
- Establish a proposed Development Baseline containing refined program cost, schedule, and performance objectives for the most promising design approach.

ENGINEERING AND MANUFACTURING DEVELOPMENT (EMD): The objectives of this phase are to:

- Translate the most promising design approach developed in the Demonstration and Validation phase into a stable, producible and cost effective system design,
- Validate the manufacturing or production process, and
- Demonstrate through testing that the system capabilities:
  - Meet contract specification requirements, and
  - Satisfy the mission need and meet minimum acceptable operational performance requirements.

PRODUCTION AND DEPLOYMENT: System performance and quality will be monitored by follow-on test and evaluation during this phase. The objectives of this phase are to:

- Establish a stable, efficient production and support base,
- Achieve an operational capability that satisfies the mission need, and
- Conduct follow-on operational and production verification testing to confirm and monitor performance and quality and verify the correction of deficiencies.

OPERATIONS AND SUPPORT: This phase overlaps with the Production and Deployment phase, and begins after initial systems have been fielded. The objectives of this phase are to:

- Ensure the fielded system continues to provide capabilities required to meet the identified mission need, and
- Identify shortcomings or deficiencies that must be corrected to improve performance.

Leading the Way to JV 2010 and Beyond

"...Tomorrow's Force must be as ready as today's and therein lies a very big challenge. While we have been able to maintain high readiness levels throughout the years of downsizing, we must now turn to replacing old equipment and sustaining a prudent modernization program in the future."

GEN John M. Shalikashvili
Chairman, Joint Chiefs of Staff
April 10, 1996

The United States military is in transition, heading away from a large Cold War force to a smaller but more capable joint force that can meet all of America's defense needs. The rapid advance of information technology makes this transformation possible. Declining defense resources make this transformation essential to the continued dominance of the U.S. military. In *Joint Vision 2010*, the Chairman of the Joint Chiefs of Staff describes the operational concepts and capabilities of that future joint force.

While all the services are moving towards Joint Vision 2010 (JV 2010), the Army leads the way. Army Vision 2010 provides the directional azimuth for modernization through its six patterns of operations. The Army Modernization Plan, in turn, describes five modernization objectives that align with the operational concepts of JV 2010. The Modernization Plan and the Force XXI process will move us to Army XXI, which will be an integral part of JV 2010's vision.

Army Weapon Systems 1997 provides an in-depth look at the weapon systems that equip America's Army today and will equip Army XXI in the future. The programs in this book range from high to low profile, but each program has an important role to play in modernization. Army XXI will require the full package of systems and upgrades if it and JV 2010 are to become a reality. This book is not a catalog of mix-and-match systems, but a description of an integrated program that will bring the Army into the future.

JOINT VISION 2010 AND ARMY XXI

"The nature of modern warfare demands that we fight as a joint team. This was important yesterday, it is essential today, and it will be even more imperative tomorrow. Joint Vision 2010 provides an operationally based template for the evolution of the Armed Forces for a challenging and uncertain future. It must become a benchmark for the Service and Unified Command visions."

GEN John M. Shalikashvili
Chairman, Joint Chiefs of Staff

JV 2010 aims to provide a conceptual template for how America's Armed Forces will achieve new levels of effectiveness in joint warfighting through the integration of its people with new technological opportunities. America's Armed Forces have the best people, but they must be given the best technology and the right kind of technology in order to retain their advantage over the rest of the world. The Armed Forces must modernize in such a way that they are prepared to fight a 21st Century conflict. The concepts in JV 2010 will help guide that modernization to ensure that our people receive the technology that will make the most difference.

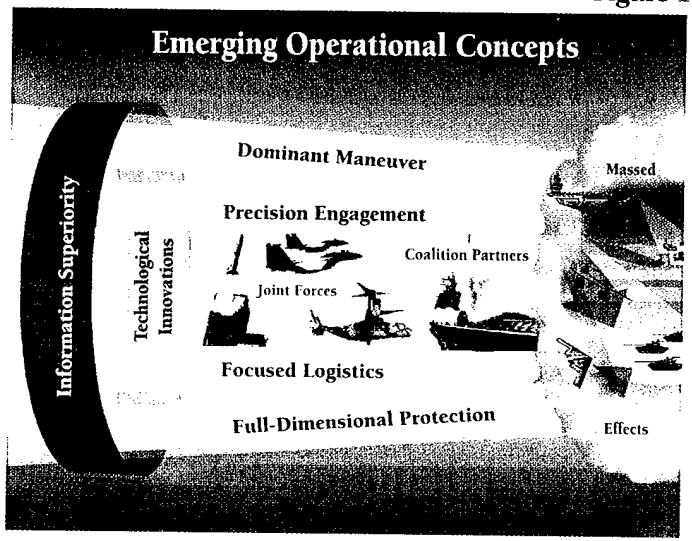
The future vision of warfare in JV 2010 centers on Information Superiority, which is defined as the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same. Information warfare involves both offensive operations against an adversary's ability to collect and use data and defensive operations to protect our own information systems from direct and indirect attack. Information superiority requires that we dominate in both kinds of operations.

Information superiority over an adversary makes it possible for U.S. forces to implement four operational concepts: Dominant Maneuver, Precision Engagement, Focused Logistics, and Full-Dimensional Protection. These four concepts focus on delivering massed effects (i.e. bringing the concentration of combat power against an adversary at the decisive time and place, without needing to physically mass forces as much as in the past). Information Superiority can produce massed effects, because it creates an information imbalance between friendly forces and the adversary. Figure 1 shows how these concepts fit together.

JV 2010 describes dominant maneuver as the multidimensional application of information, engagement, and mobility capabilities to position and employ widely dispersed joint air, land, sea, and space forces to accomplish the assigned operational tasks. It is the old Army approach of shoot, move, and communicate taken to a much more sophisticated level.

Precision engagement is a system of systems that will enable our forces to locate the objective or target, provide responsive command and control, generate the desired effect, assess our level of success, and retain the flexibility to reengage with precision when required. Precision engagement reinforces dominant maneuver by allowing U.S. forces to shape the battlespace from extended ranges.

Figure 1



Focused logistics is the fusion of information, logistics, and transportation technologies to provide rapid crisis response, to track and shift assets even while en route, and to deliver tailored logistics packages and sustainment directly at the strategic, operational, and tactical level of operations. It will allow U.S. forces to project their power more quickly and operate more efficiently.

Full dimensional protection will guarantee U.S. forces freedom of action in the battlespace by protecting them from many of the same technologies they will exploit. A multi-layer defense against ballistic missiles, cruise missiles, and nuclear, biological and chemical weapons will give the future joint force the freedom to deploy, maneuver and engage the adversary quickly and decisively.

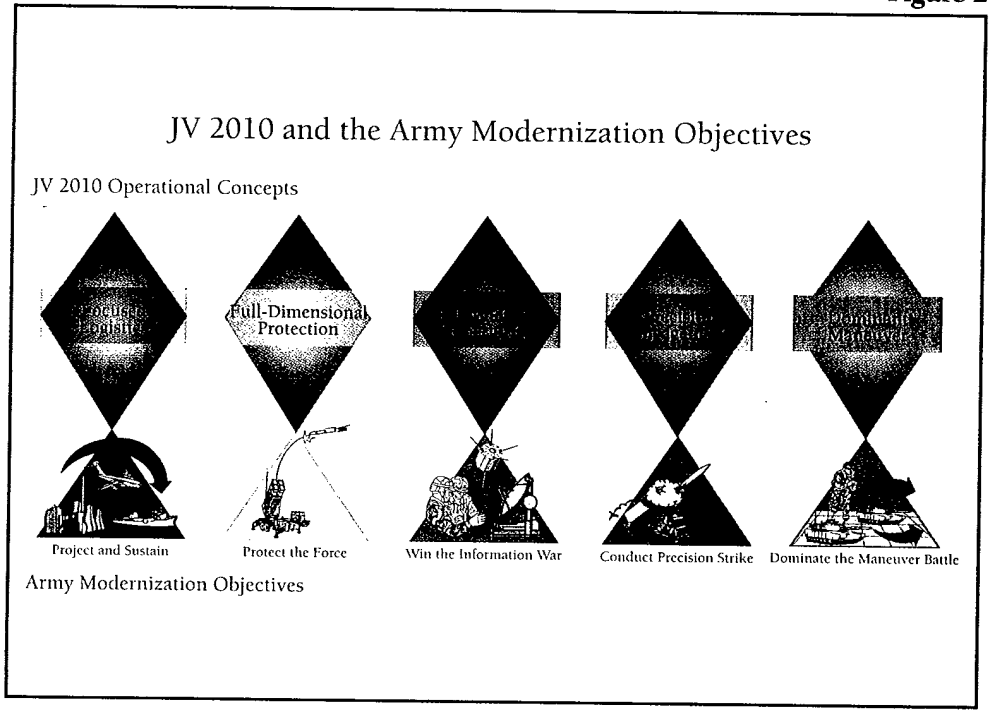
These operational concepts add up to full spectrum dominance of an adversary across all categories of conflict. JV 2010 is about merging the best technology and the right technology with the best people to achieve full spectrum dominance. The Army is already on its way there.

ARMY SUPPORT OF JV 2010: OBJECTIVES AND SYSTEMS

The Army Modernization Plan lays out five modernization objectives that align with the operational concepts of JV 2010. The technology and concepts that are being tested in the Force XXI process will be the means to achieving those modernization objectives and moving toward Army XXI. It is through the Force XXI process, and the synchronization of Army capabilities and a modernization strategy, that the Army is leading the way to JV 2010 and beyond. Figure 2 shows the linkage between the JV 2010 operational concepts and the five Army modernization objectives.

Win the information war; dominate the maneuver battlefield; conduct precision strike; project and sustain; and protect the force are the Army's modernization objectives. Each modernization objective captures the same future capabilities as its JV 2010 counterpart. Army XXI will utilize the full package of operational concepts in JV 2010, putting Army systems and Army warfighters at the core of the future joint force.

Figure 2



"Modernization has had to make do with what we could salvage."

The Hon. Gilbert F. Decker
Assistant Secretary of the Army for
Research, Development, and Acquisition

The Army Modernization Plan (AMP) describes the what and why of the systems and capabilities that will go into Army XXI. Each objective is a statement of capabilities that the Army will need in the future to retain an overwhelming technological and doctrinal advantage over opposing forces. The plan also describes the systems needed to realize those capabilities. Getting the resources to modernize our forces towards each objective is critical to making Army XXI a success.

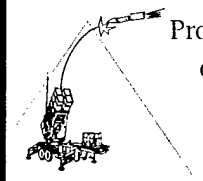
"Who the hell gets excited about a 2 1/2 ton truck? Well, I do. If you are in combat and can't move supplies you're in trouble."

The Hon. Gilbert F. Decker
Assistant Secretary of the Army for
Research, Development, and Acquisition

Project and Sustain

Project & sustain describes those systems and capabilities needed to rapidly deploy U.S. forces into a potentially hostile area and to sustain and augment them as necessary once deployed. This objective covers the critical logistic systems needed to move a force to and within a theater and to keep that force supplied. It includes non-Army strategic lift programs like the USAF C-17 and the Navy's Large Medium Speed Roll-on/Roll-off Ship (LMSR). Army efforts to improve the self-deployability of systems like the Comanche and Apache Longbow also support this objective. Project & Sustain covers the workhorses of intratheater lift like the UH-60 Black Hawk, the High Mobility Multipurpose Wheeled Vehicle (HMMWV), the Family of Medium Tactical Vehicles, and the Palletized Load System. It also includes systems like the Total Distribution Program which track the flow of supplies. Improved logistic efficiency will permit a move away from "supply push" to "just in time" logistics that will make optimal use of lift assets. Finally, it includes the systems like Force Provider, Family of Operational Rations and Deployable Medical Systems which improve the quality of life for soldiers in forward areas.

Protect the Force

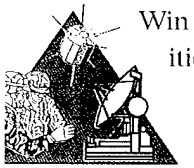


Protect the Force describes the systems and capabilities needed to enhance the survivability of U.S. forces against the wide range of modern battlefield threats. Once a force has been projected into a region, it must be able to defend itself against deep strikes by the adversary. If the forward assembly areas cannot be defended, the U.S. cannot easily build up its forces. The Army requires systems for theater missile defense and chemical and biological weapon detection and defense. The Theater High Altitude Area Defense System (THAAD) and Medium Air Defense System (MEADS) are two systems in this category. The Army must also improve the survivability of its forces in combat, which means enhancing soldier survivability through the development of items like lightweight body armor and combat identification systems.

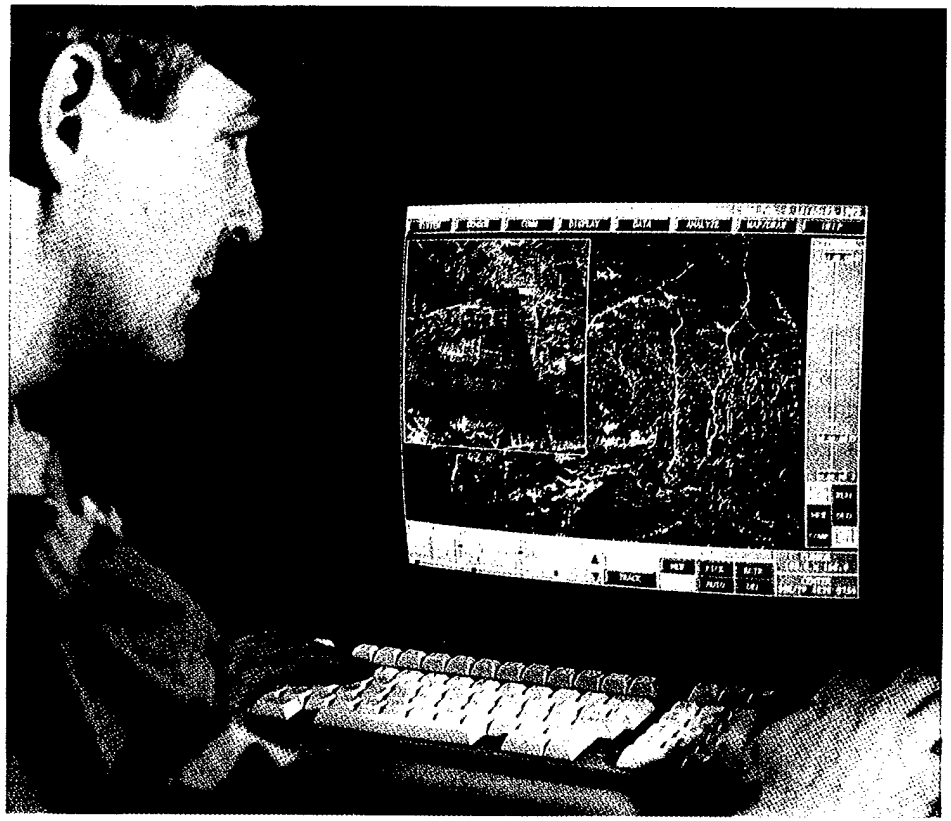
"There's a whole bunch of unglamorous things in the Army that are absolutely vital to the combat force."

The Hon. Gilbert F. Decker
Assistant Secretary of the Army for
Research, Development, and Acquisition

Win the Information War

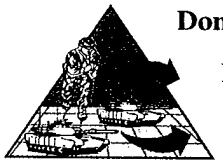


Win the information war describes systems and capabilities needed to give U.S. forces an overwhelming information advantage in combat. Once the U.S. projects a force into a region and begins the build-up for the maneuver battle, the force must know where the adversary is and what it is doing. The Comanche will serve as the commander's "eyes and ears" to provide tactical reconnaissance and battlefield situational awareness. As the ground maneuver element of the joint force, the Army needs improved Command, Control, Communications, Computers and Intelligence (C^4I) systems that will allow it to conduct deep simultaneous attacks against the enemy, while limiting the exposure of friendly forces. This includes systems that will provide all commanders and soldiers with total situational awareness, allowing them to know where both friendly and hostile units are. It includes the sensors that will detect and identify targets as well as the systems that will interpret and move the data to the appropriate users. It also includes the systems that will protect information about the locations and numbers of friendly forces.



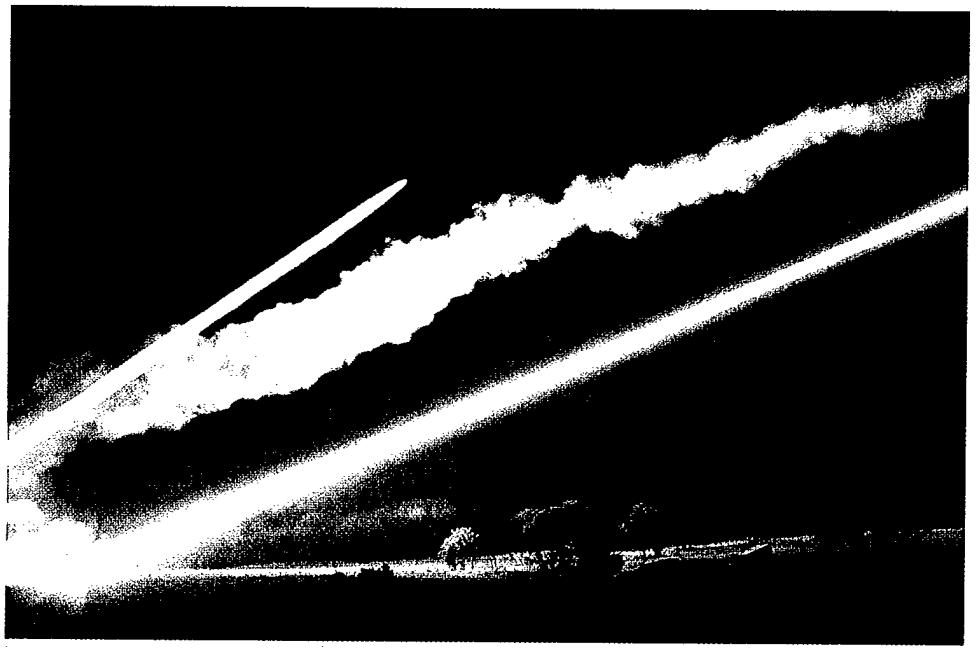
Conduct Precision Strike

Conduct precision strike describes systems and capabilities needed to strike at hostile forces in their assembly areas and to shape the maneuver battlefield. As the projected force prepares to move to the maneuver battle, the Army, as part of the joint team, must be able to destroy and disrupt the adversary as much as possible before Army maneuver units make contact. Both the Apache Longbow and the Comanche will allow the commander to plan and execute the close and deep battles rapidly, day or night and in any weather. Systems such as the Army Tactical Missile System (ATACMS) and the Multiple Launch Rocket System (MLRS) using precision munitions will allow U.S. forces to engage and destroy hostile forces before contact.



Dominate the Maneuver Battle

Dominate the maneuver battle describes the systems and capabilities needed to retain land force dominance over opposing forces. When Army maneuver units move to engage the adversary, they must have an overwhelming technological advantage in order to produce massed effects. A smaller Army needs to hit harder, move faster and have better situational awareness, if it is to dominate the battlefield. This means providing upgrades to existing systems like Apache, Abrams and Bradley, as well as acquiring new systems like Line-of-Sight Anti-Tank (LOSAT) and the Crusader advanced field artillery system. These systems will ensure that as U.S. maneuver units close with the adversary, they will have an overwhelming technological advantage, achieving modernization overmatch.



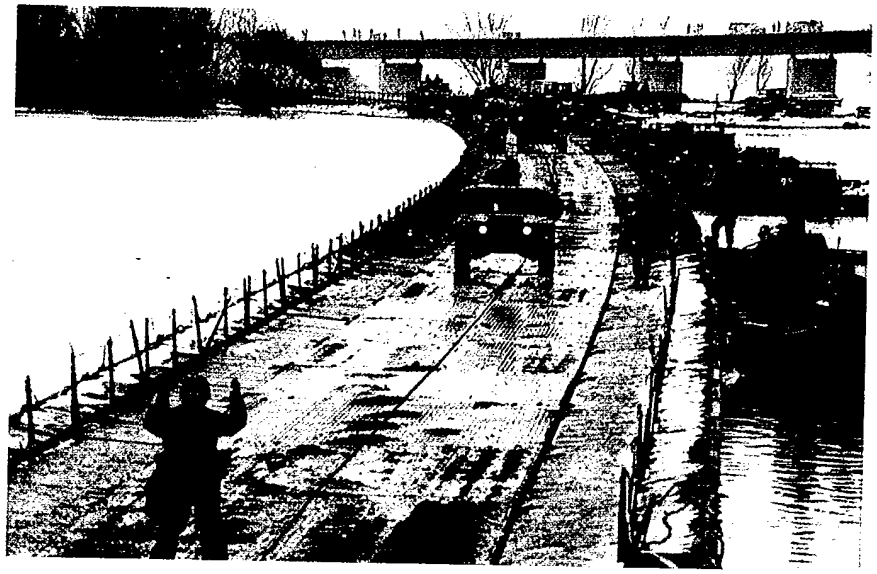
ARMY MODERNIZATION: LEADING THE WAY TO JV 2010 AND BEYOND

The Army is well-situated to lead the way toward the Chairman's vision of the future force of full spectrum dominance. But it can only do so if its modernization plan is adequately resourced. Most of the systems in this book are not glamorous and for some their contribution to Army XXI may not be immediately clear. However, each system in the book is part of an integrated whole that will lead to Army XXI and JV 2010.

Each system in this book is listed according to the Army modernization objective that it primarily supports and the capabilities they enhance the most. On each system page are icons showing which other modernization objectives that system supports. As you, the reader, examine these systems, remember that each modernization icon represents a set of future capabilities that tomorrow's Army must realize for it to remain the dominant military force in the world.

"...we mortgaged the modernization account to take care of the people. Now it's time to rebalance that equation."

GEN Dennis J. Reimer
Chief of Staff of the Army
23 April 1996



The systems in this book, like the capabilities in the Army Modernization Plan, are part of an integrated approach to make the Army of the future capable of meeting the increased demands of our nation with fewer resources. Each system and each capability has an important role to play in making modernization a reality. Each system and each capability will contribute towards the Army's ability to respond to our nation's needs. The systems in this book are today's investment to ensure the future readiness of our Army. The Army of tomorrow will rely on these systems to successfully perform all assigned missions.